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STREAM LINING CROSS CONNECTION SURVEYS USING POCKETPCs

MACTEC Federal Programs, Inc.

8 April 2004

Overview

- **Cross Connection and Backflow Prevention Device Requirements**
- **Past Survey Methodology**
- **WaterTool**
  - **Reasons for Development**
  - **System Components**
  - **Field Experience**
  - **Benefits**
- **Summary**

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Cross Connection/Backflow Prevention Device Requirements

- **Must follow Federal, State, Local, and Air Force Regulations**
- **Federal, State, and Local Regulations based on Safe Drinking Water Act**
  - **Water purveyor responsibility**
  - **Enforced by local health agency**

Requirements – cont.

- **AFI 32-1066 - Framework for Air Force BPD Program**
  - **Requires survey every 5 years**
  - **Adopts Technical Guidance**
  - **Defines Responsibilities of Air Force Personnel**
  - **Establishes Recordkeeping for BPD Program**
  - **Recommends Testing and Inspection Intervals**
  - **Requires Training and Certification of Plumbers**

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Past Survey Methodology

- **Survey Team – Contractors, CES, BEF**
- **Existing AF Forms 845 and 848 located**
- **CC/BPD data handwritten on AF Form 845**
  - **Location, size, manufacturer, serial number, degree of hazard**
  - **Device location sketches**
- **Data hand-transferred to AF Form 848**
- **CC/BPD data stored in 3-ring binders**

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Reasons for Development of Water Tool

- **Manage the large quantities of data**
  - **Hundreds of buildings**
  - **Thousands of devices and data items**
- **More efficient surveys**
- **More efficient updates**
- **More accurate data collection**
- **More efficient cost estimates**

- **Databases exist but are not linked to PocketPC's**

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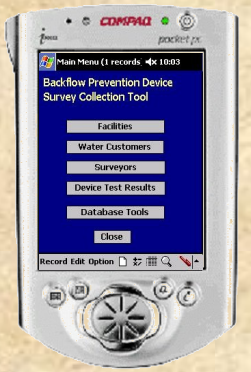
Water Tool System Components



Desktop Master Database

- **Microsoft Access**
- **DoD, Industry Standard**
- **Open system can link with other databases**

PocketPC Database

- **Visual CE by Syware**
- **ODBC compliant**
- **Supports Rapid Application Development (RAD)**

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Water Tool System Setup

- **Install Forms**
- **Sync Data**

- **Desktop, or**
- **Network Share Drive**

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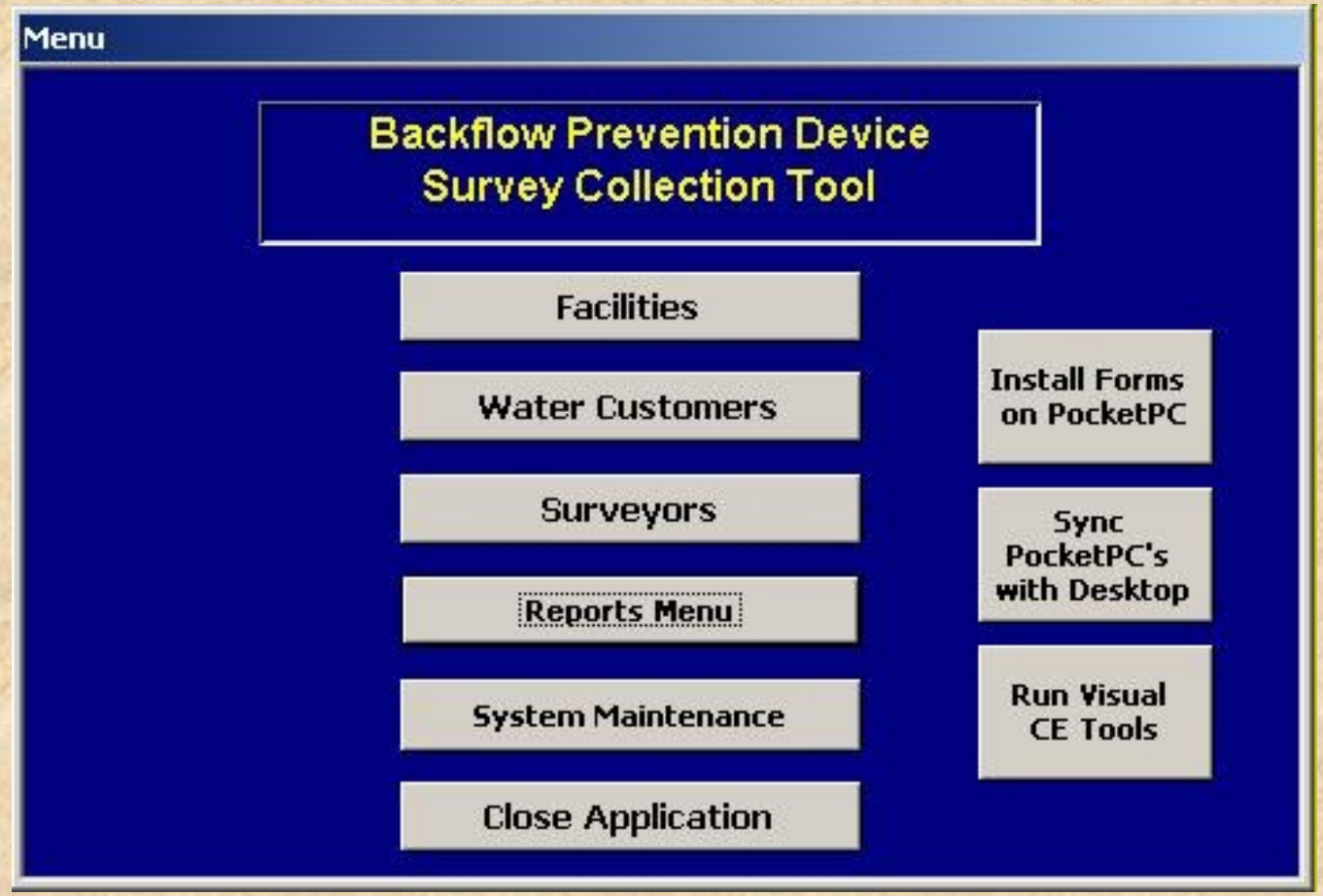
Desktop Master Database - Main Menu



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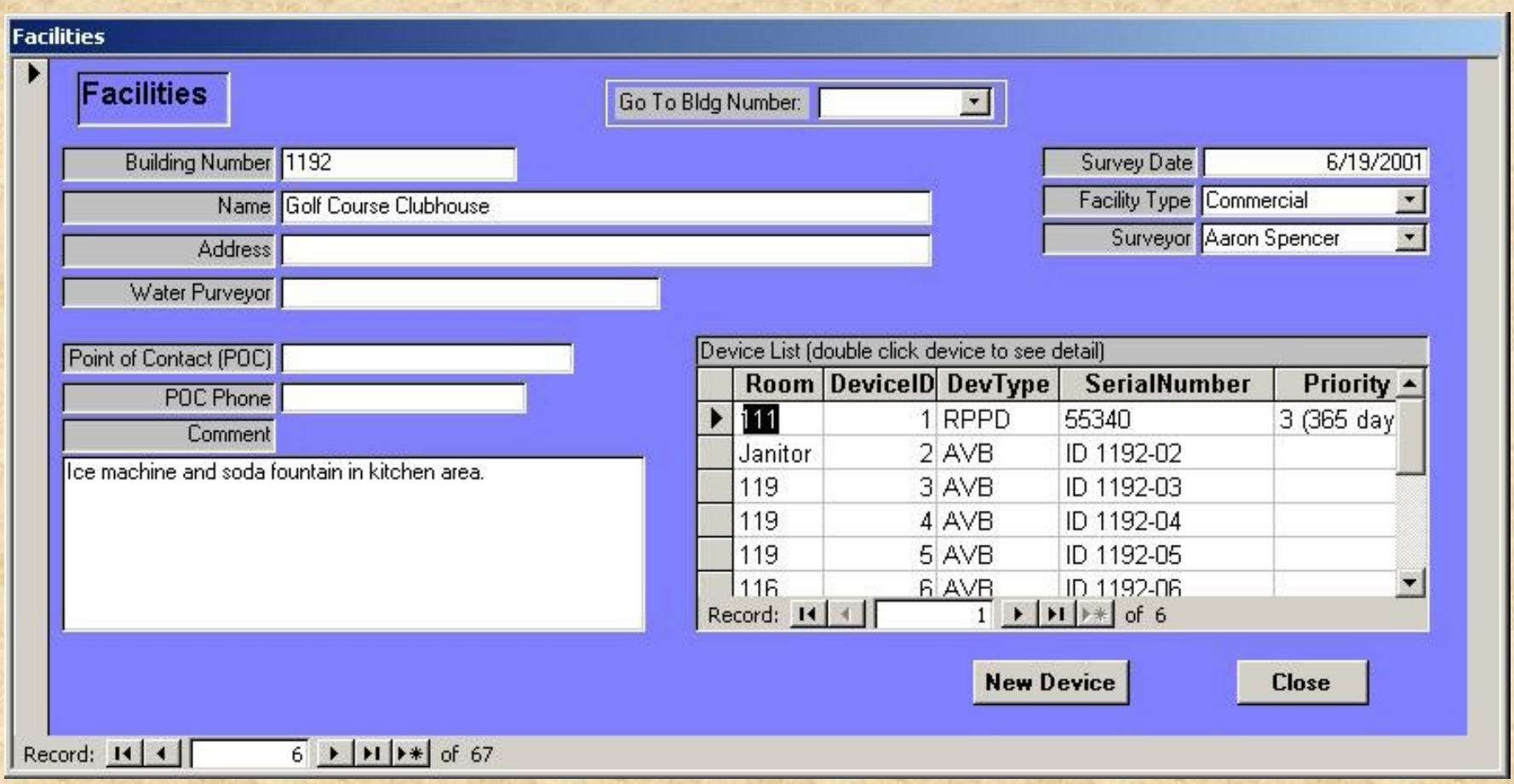
Desktop Master Database – Facilities Screen



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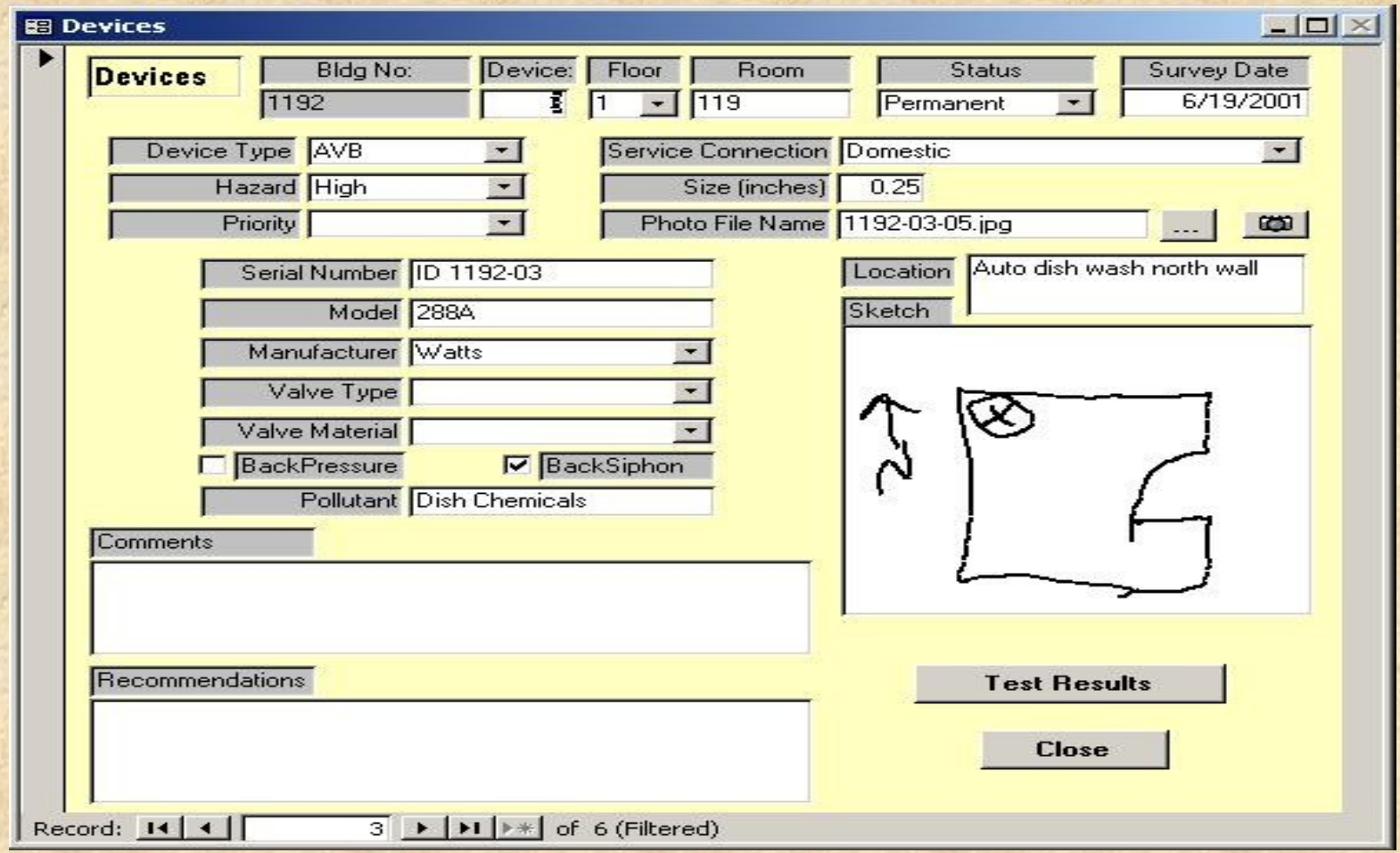
Desktop Master Database – Devices Screen



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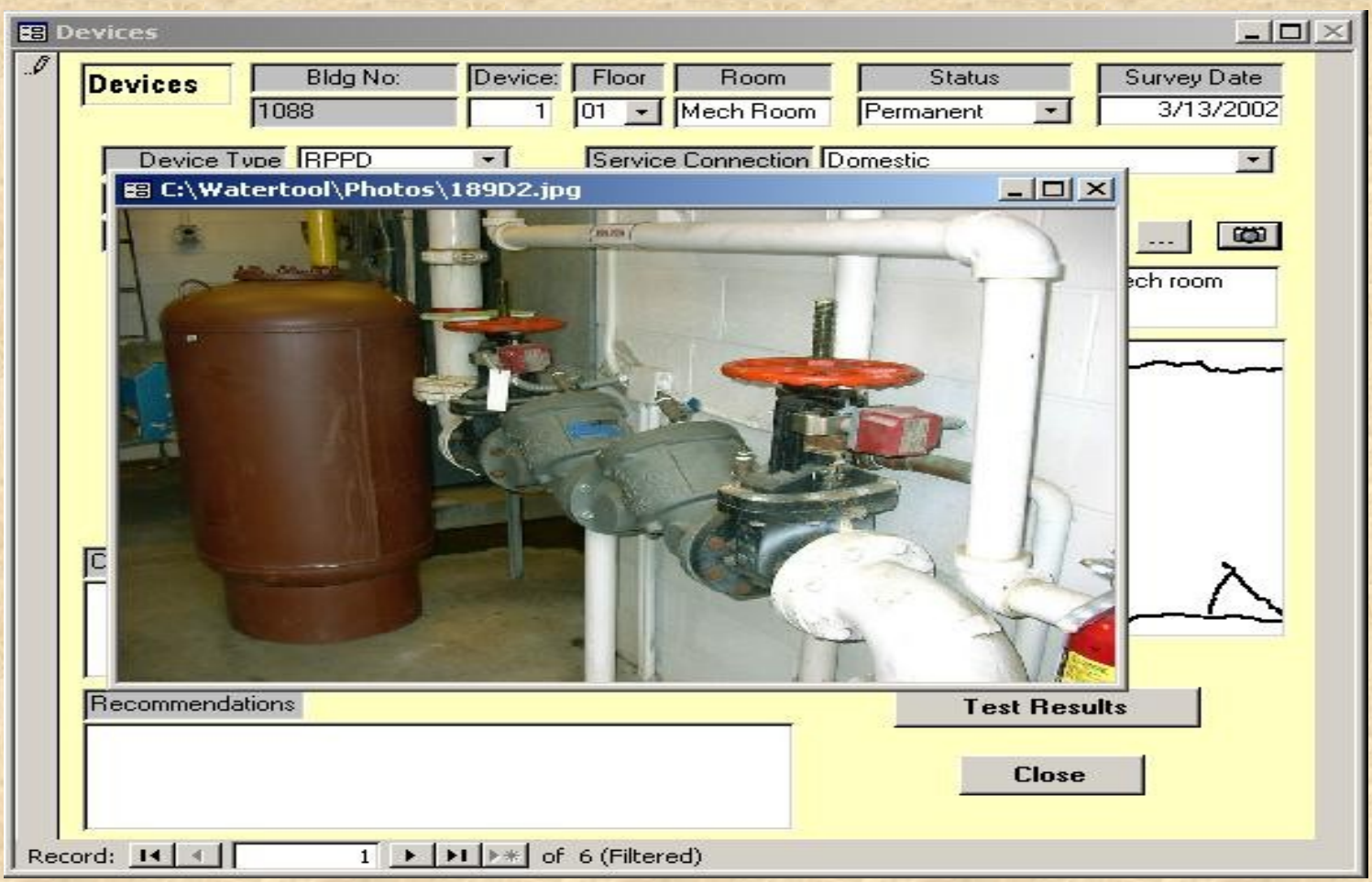
Desktop Master Database – Devices Screen



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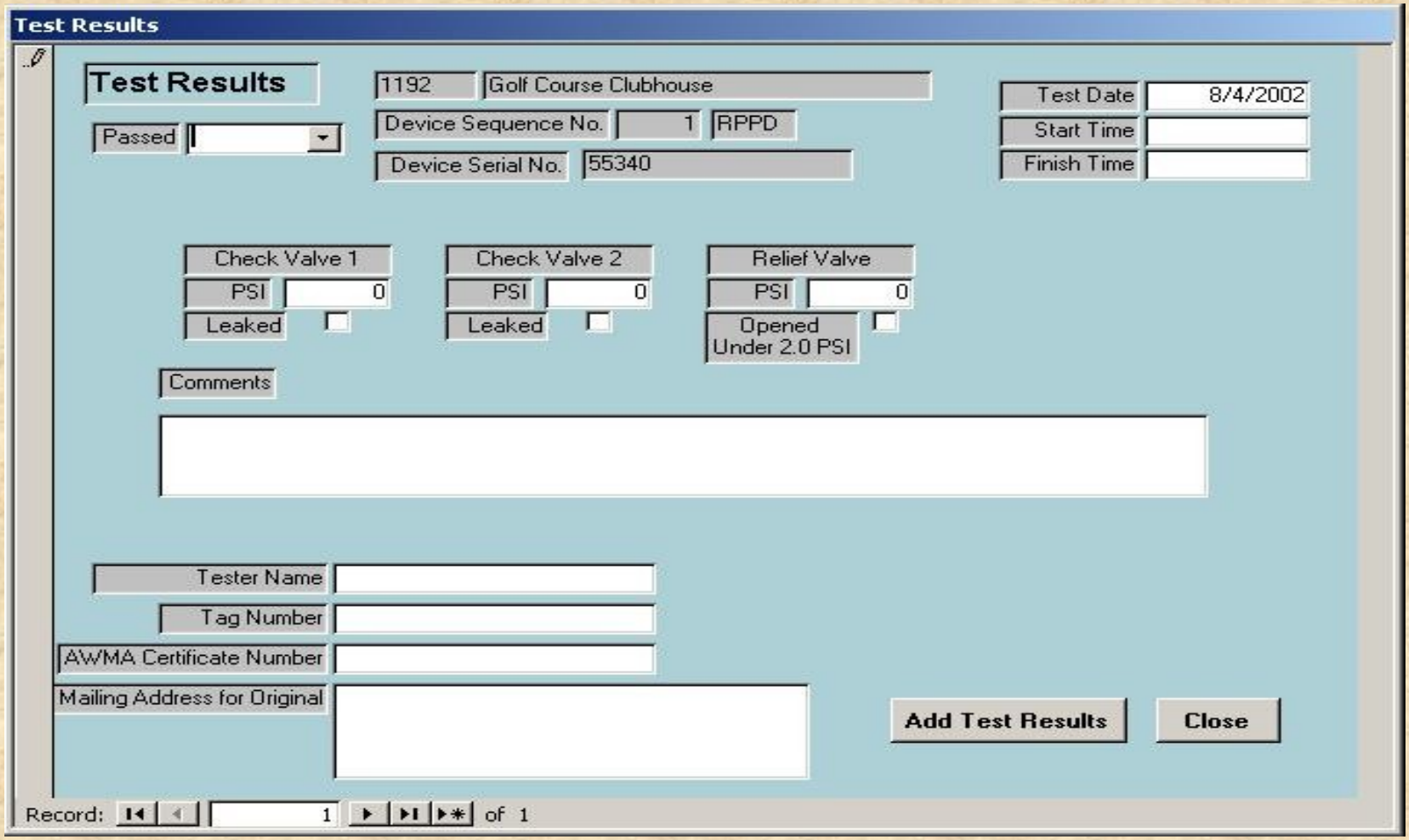
Desktop Master Database – Test Results Screen



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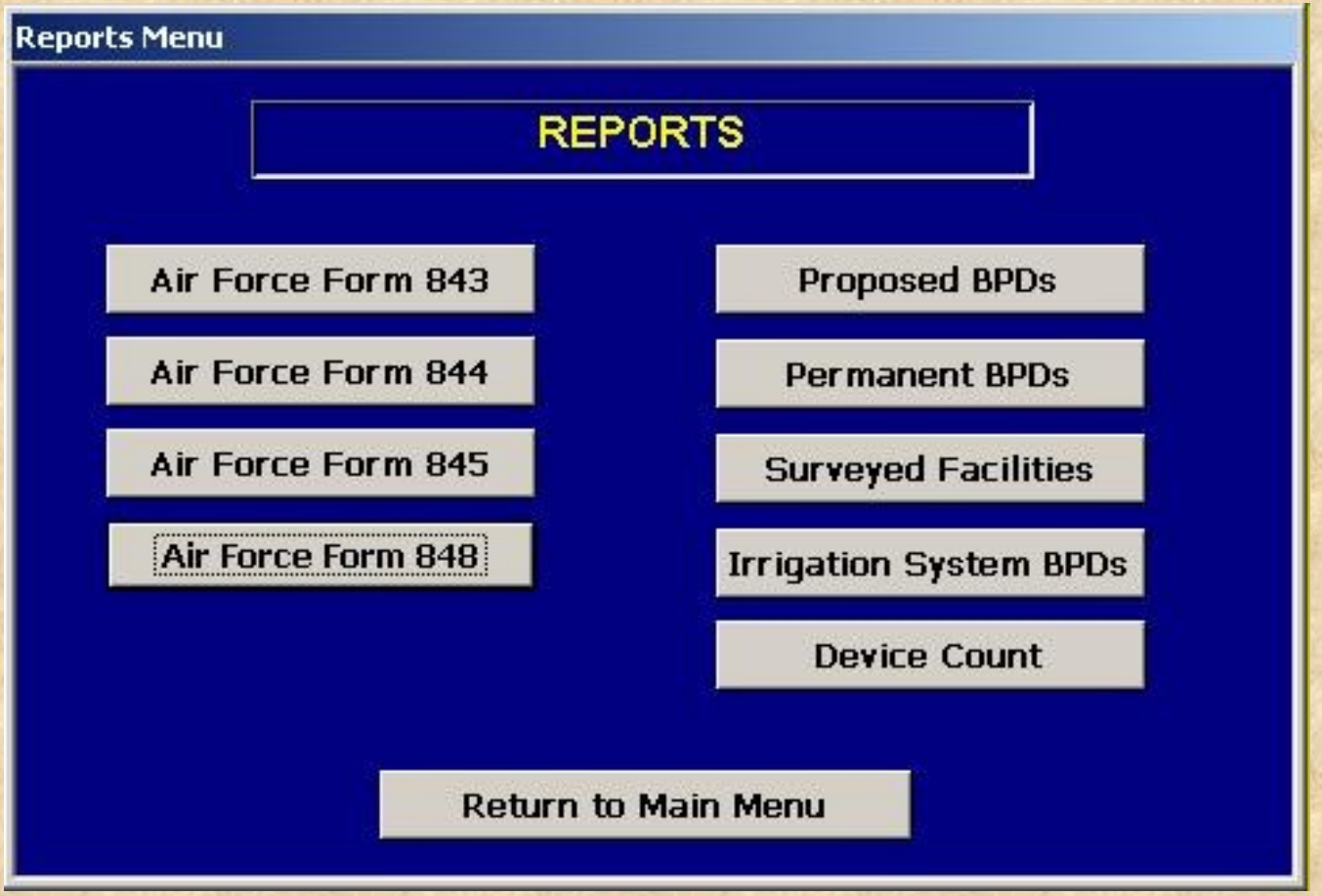
Desktop Master Database - Reports Menu



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AF Form 845

CROSS-CONNECTION INFORMATION				DATE
				04-Aug-02

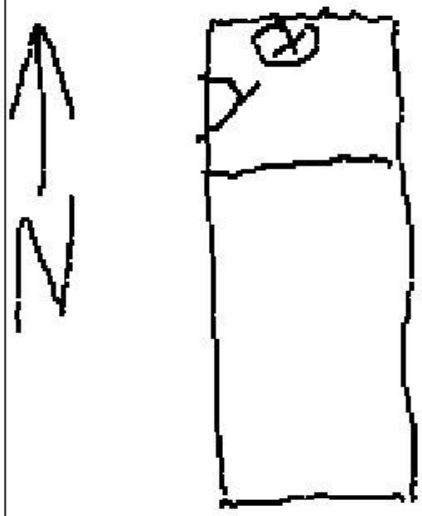
NUMBER	LOCATION			
81154	FACILITY: 1197-A	FLOOR 01	ROOM: storage	North wall of North room

DEGREE OF HAZARD: High

DESCRIPTION OF AIR GAP/REDUCED PRESSURE DEVICE: Domestic — POLLUTANT: Pestiside

TYPE	MANUFACTURER	MODEL	SIZE NUMBER	AIR GAP IN INCHES
RPPD	Watts	009	1	

SKETCH OF LOCATION



PHOTOGRAPH OF INSTALLATION

Photo File Name: C:\WatertoolPhotos\189D2.jpg

AF FORM 845

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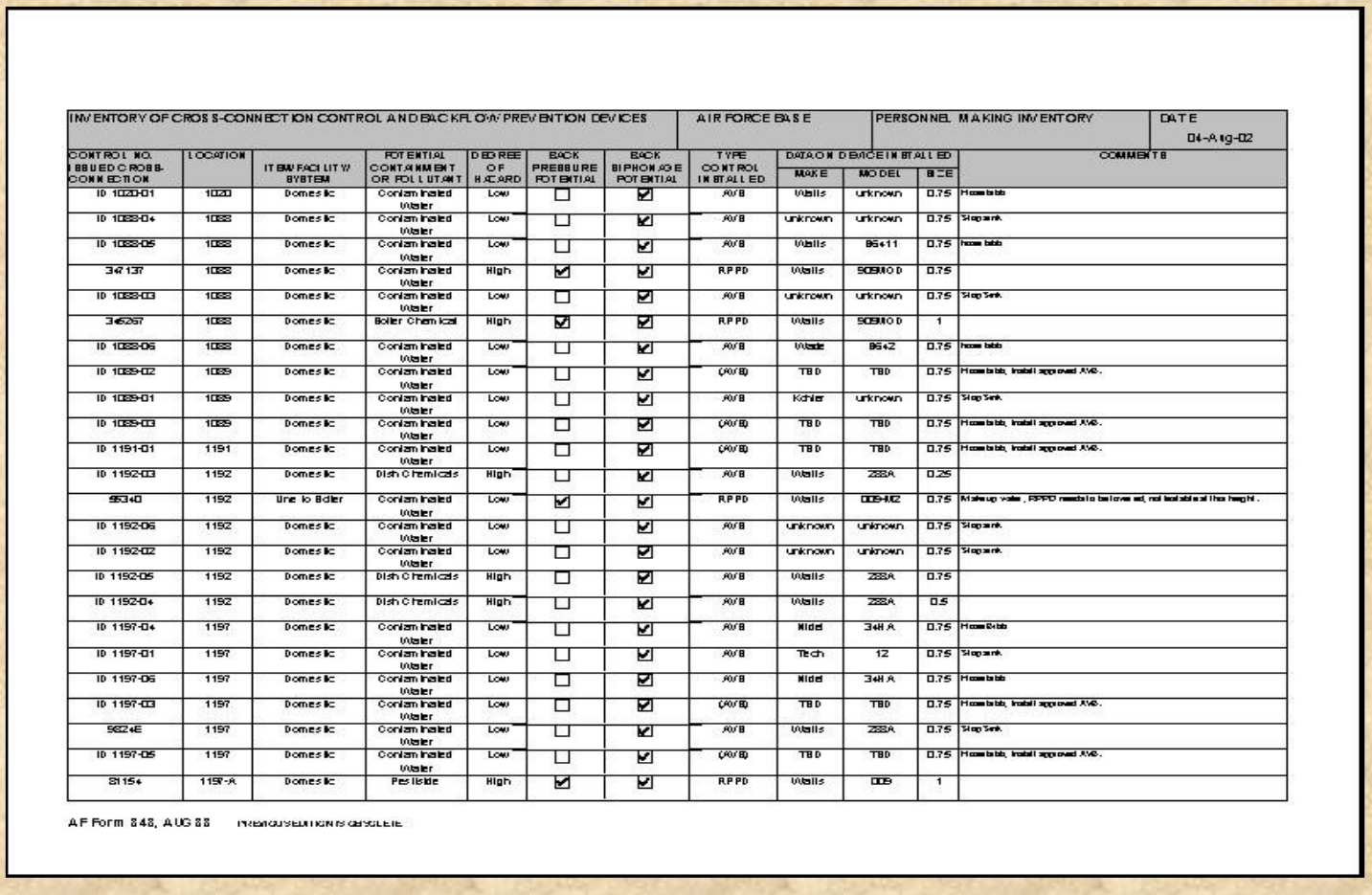
AF Form 848



INVENTORY OF CROSS-CONNECTION CONTROL AND BACKFLOW PREVENTION DEVICES | AIR FORCE BASE | PERSONNEL MAKING INVENTORY | DATE 04-Aug-02

CONTROL NO. ISSUED CROSS-CONNECTION	LOCATION	ITEM/FACILITY/SYSTEM	POTENTIAL CONTAINMENT OR POLLUTANT	DEGREE OF HAZARD	BACK PRESSURE POTENTIAL	BACK SIPHONAGE POTENTIAL	TYPE CONTROL INSTALLED	DATA ON DEVICE INSTALLED			COMMENTS
								MAKE	MODEL	SIZE	
ID 1020-01	1020	Domestic	Contaminated Water	Low	☐	☑	AVB	Watts	unknown	0.75	Hose bibb
ID 1033-04	1033	Domestic	Contaminated Water	Low	☐	☑	AVB	unknown	unknown	0.75	Slop sink.
ID 1033-05	1033	Domestic	Contaminated Water	Low	☐	☑	AVB	Watts	8541	0.75	hose bibb
347137	1033	Domestic	Contaminated Water	High	☑	☑	RPPD	Watts	909M0D	0.75	
ID 1033-03	1033	Domestic	Contaminated Water	Low	☐	☑	AVB	unknown	unknown	0.75	Slop Sink.
345267	1033	Domestic	Boiler Chemical	High	☑	☑	RPPD	Watts	909M0D	1	
ID 1033-06	1033	Domestic	Contaminated Water	Low	☐	☑	AVB	Wade	8542	0.75	hose bibb
ID 1039-02	1039	Domestic	Contaminated Water	Low	☐	☑	(AVB)	TBD	TBD	0.75	Hose bibb; Install approved AVB.
ID 1039-01	1039	Domestic	Contaminated Water	Low	☐	☑	AVB	Kohler	unknown	0.75	Slop Sink.
ID 1039-03	1039	Domestic	Contaminated Water	Low	☐	☑	(AVB)	TBD	TBD	0.75	Hose bibb; Install approved AVB.
ID 1151-01	1151	Domestic	Contaminated Water	Low	☐	☑	(AVB)	TBD	TBD	0.75	Hose bibb; Install approved AVB.
ID 1152-03	1152	Domestic	Dish Chemicals	High	☐	☑	AVB	Watts	288A	0.25	
95340	1152	Line to Boiler	Contaminated Water	Low	☑	☑	RPPD	Watts	009-M2	0.75	Make-up water, RPPD needs to be covered, not testable at this height.
ID 1152-06	1152	Domestic	Contaminated Water	Low	☐	☑	AVB	unknown	unknown	0.75	Slop sink.
ID 1152-02	1152	Domestic	Contaminated Water	Low	☐	☑	AVB	unknown	unknown	0.75	Slop sink.
ID 1152-05	1152	Domestic	Dish Chemicals	High	☐	☑	AVB	Watts	288A	0.75	
ID 1152-04	1152	Domestic	Dish Chemicals	High	☐	☑	AVB	Watts	288A	0.5	
ID 1157-04	1157	Domestic	Contaminated Water	Low	☐	☑	AVB	Wilkins	34HA	0.75	Hose Bibb
ID 1157-01	1157	Domestic	Contaminated Water	Low	☐	☑	AVB	Tech	12	0.75	Slop sink.
ID 1157-06	1157	Domestic	Contaminated Water	Low	☐	☑	AVB	Wilkins	34HA	0.75	Hose bibb
ID 1157-03	1157	Domestic	Contaminated Water	Low	☐	☑	(AVB)	TBD	TBD	0.75	Hose bibb; Install approved AVB.
56234E	1157	Domestic	Contaminated Water	Low	☐	☑	AVB	Watts	288A	0.75	Slop Sink.
ID 1157-05	1157	Domestic	Contaminated Water	Low	☐	☑	(AVB)	TBD	TBD	0.75	Hose bibb; Install approved AVB.
81154	1157-A	Domestic	Pesticide	High	☑	☑	RPPD	Watts	009	1	

AF Form 848, AUG 88 PREVIOUS EDITIONS OBSOLETE

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PocketPC – Main Menu

FEATURES

- Tap the buttons to go to different screens
- Tap Close to exit application

PocketPC – Facilities Screen

FEATURES

- Tap the More button to view more facility information
- Data can be entered directly into fields
- Or data can be selected from pull down lists

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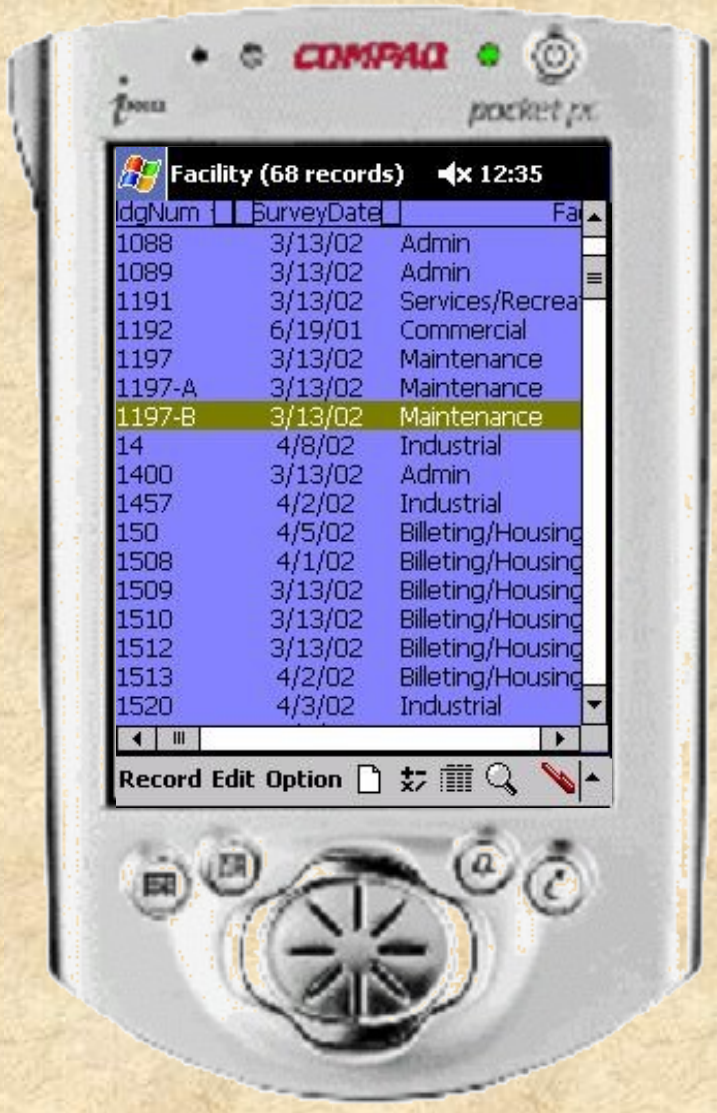
PocketPC – Facilities Screen



FEATURES
Ease of Use Features

- Show list views of the Data and go directly to that selected information

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PocketPC – Facilities Screen

FEATURES

- Tap Add New Device to add a device
- Tap on device grid to go to the device screen

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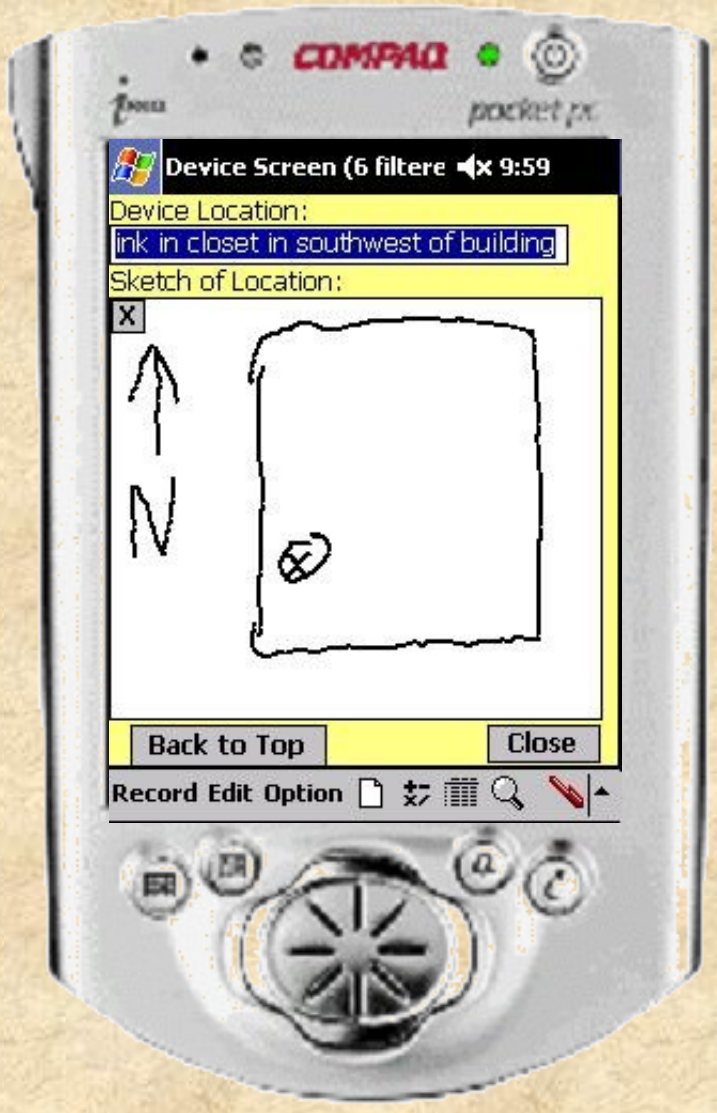
PocketPC – Device Screen

FEATURES

- Tap Device Details to see more information
- Tap Loc. / Sketch to enter the location and sketch the site
- Tap Comments / Recommendations to enter that information
- Tap Close to return to the

PocketPC – Device Screen



FEATURES

- Enter sketches to supplement data
- Information can be entered from pop up keypads
- Tap Back to Top to return to the main device screen
- Tap Close to return to the Facilities screen

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PocketPC – Device Screen

FEATURES
Flexible Data Entry

- Comment fields can be built from selections in a phrase list
- New phrases can be added to the list from the comment field

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PocketPC – Test Results Screen

FEATURES

- Tap on the different Valves to enter test information
- Tap Close to return to the Main Menu screen

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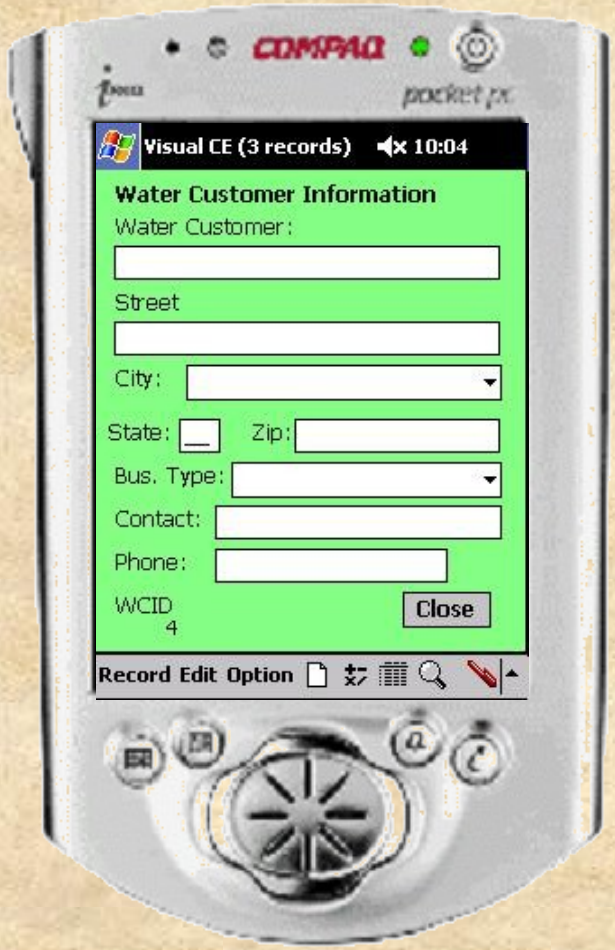
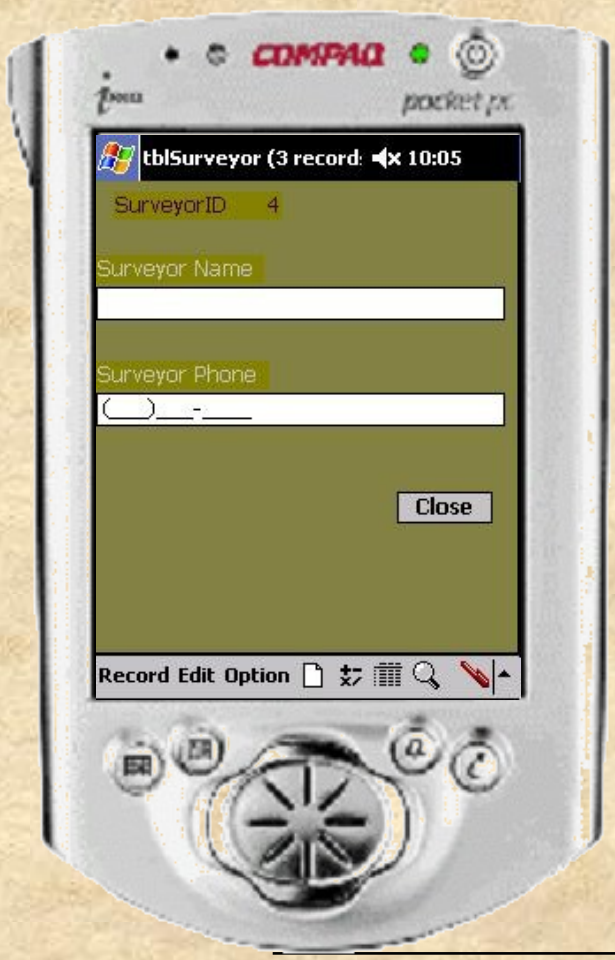
PocketPC – Other Screens





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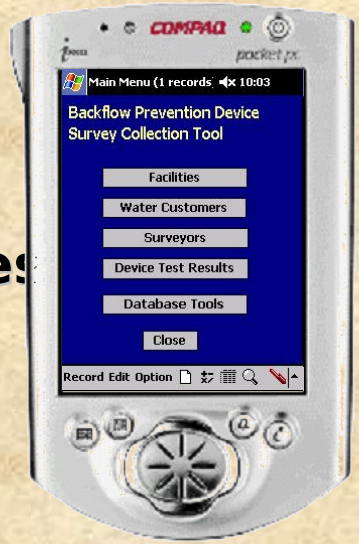
PocketPC – Database Tools

FEATURES

- Expunge – delete data tables
- Backup – backup data tables
- Index CDB – create indexes

Water Tool Field Experience

- **Survey Team – MACTEC (2), CES, BEF**
- **For each building on base:**
  - **Review existing AF 848 forms**
  - **Identify cross connections and devices**
  - **Enter data and sketches on PocketPC**
  - **Take digital photograph**
  - **Assign priority based on hazard level**



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WaterTool Field Experience – cont.

- **Sync data**

- **Review and edit data**
- **Link photographs to devices**
- **Print AF Forms 845 and 848**

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Water Tool Benefits

- **Reduce total survey time**
  - **Eliminates data transfer from form to form**
  - **Eliminates data transfer from form to computer**
  - **Single data input reduces survey errors**
- **Reduce future survey time**
  - **Device information is current**
  - **Only changes must be entered**
- **Management Tool easily prints survey data**
- **DOD Developed software – its Free to you.**

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Future Enhancements

- **Take Pictures with PocketPC**
  - **Camera Attachment**
  - **Memory Cards**
- **Wireless Database Access**
  - **ODBC Connections Exist**
  - **Infrastructure Must Be In Place**
- **GPS Capabilities**
- **Integration with GeoBase/ACES Systems**

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Where Used

- **MACTEC has used at 3 AF Bases and 11 ANG Bases**
- **Independently implemented at several other AF Bases**
- **Bases use the Water Tool to:**
  - **Meet regulatory requirements**
  - **Update surveys and maintain test results**
  - **Manage their CC/BPD inspection and testing program**
  - **Prepare RFQ for BPD testing contracts**

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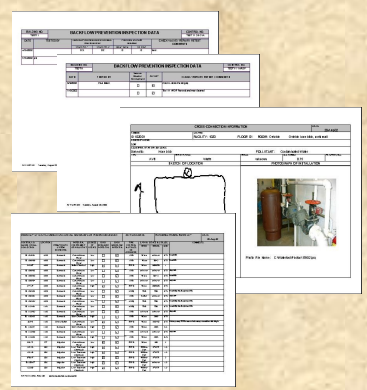
Water Tool System Summary

- **Desktop and PocketPC Components**
- **Supports simple upkeep and maintenance of CC/BPD Program**
- **Allows**
  - **Quick and efficient field data collection**
  - **Management of all devices**
  - **Printing of required forms**
- **Software is free**



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